What is Claimed is:

1. A liquid metering system comprising:

a pump disposed between a liquid supply and a reservoir, the reservoir comprising an inlet connected to the pump, an air/liquid outlet and a liquid outlet, the air/liquid outlet connected to an air separation chamber, the liquid outlet connected to a flow meter and a liquid outlet valve, the air separation chamber connected to an air outlet, the air outlet connected to an air release valve,

the air separation chamber accommodating an optical liquid level sensor for sensing the presence of air in front thereof within the air separation chamber,

the optical sensor, air release valve and liquid outlet valve being linked to a controller,

wherein, when the optical sensor senses air in front thereof, the sensor sends a signal to the controller to open the air release valve and close the liquid outlet valve, and when the optical sensor senses liquid in front thereof, the optical sensor sends a signal to the controller to close the air release valve and open the liquid outlet valve.

2. The system of claim 1 wherein the controller is a relay and when the optical sensor senses air in front thereof, the relay shuts the liquid outlet valve and opens the air release valve and when the optical sensor senses liquid in front thereof, the relay shuts the air release valve and opens the liquid outlet valve.

3. The system of claim 1 wherein the optical sensor comprises a 12 volt switch that is off when air is in front of the optical sensor and that is on when liquid is in front of the optical sensor,

the air release valve and outlet valves each being solenoid valves, the controller comprises two transistors in series with a first transistor linked to the air release valve and a second transistor linked to the liquid outlet valve,

wherein when the 12 volt switch of the optical sensor is off, the air release valve is open and the liquid outlet valve is closed and when the 12 volt switch of the optical sensor is on, the liquid outlet valve is open and the air release valve is closed.

4. The system of claim 3 wherein a low flow liquid outlet and low flow liquid outlet valve are connected in parallel to the liquid outlet and the liquid outlet valve, the low flow liquid outlet valve also being a solenoid valve,

the controller further comprises a third transistor in parallel with the second transistor, the third transistor linked to the low flow liquid outlet valve,

wherein either the low flow liquid outlet or the primary liquid flow output is closed when air is sensed.

5. The system of claim 1 wherein the optical sensor comprises a 12 volt switch that is on when air is in front of the optical sensor and that is off when liquid is in front of the optical sensor,

the air release valve and outlet valves each being solenoid valves, the controller comprises two transistors in series with a first transistor linked to the air release valve and a second transistor linked to the liquid outlet valve,

wherein when the 12 volt switch of the optical sensor is on, the air release valve is open and the liquid outlet valve is closed and when 12 volt switch of the optical sensor is off, the liquid outlet valve is open and the air release valve is closed.

6. The system of claim 5 wherein a low flow liquid outlet and low flow liquid outlet valve are connected in parallel to the liquid outlet and the liquid outlet valve, the low flow liquid outlet valve also being a solenoid valve,

the controller further comprises a third transistor in parallel with the second transistor, the third transistor linked to the low flow liquid outlet valve,

wherein either the low flow liquid outlet or the primary liquid flow output is closed when air is sensed.

7. The system of claim 1 wherein the reservoir accommodates a strainer disposed between the inlet and the liquid outlet.

8. The system of claim 1 wherein the optical sensor comprises an optical prism and solid state switch having an off position when air is in front of the optical prism and an on position when liquid is in front of the prism, the optical sensor being mounted through a sidewall of the air separation chamber.

9. The system of claim 1 wherein the optical sensor comprises an optical prism and solid state switch having an on position when air is in front of the optical prism and an off position when liquid is in front of the prism, the optical sensor being mounted through a sidewall of the air separation chamber.

10. The system of claim 1 wherein the air separation chamber is disposed directly on top of the reservoir.

11. An air/liquid separator comprising:

a pump connected to a reservoir, the reservoir comprising an inlet connected to the pump, an air/liquid outlet and a liquid outlet, the air/liquid outlet connected to a air separation chamber, the liquid outlet connected to a liquid outlet valve, the air separation chamber connected to an air outlet, the air outlet connected to an air release valve,

the air separation chamber accommodating an optical sensor for sensing the presence of air in front thereof within the air separation chamber,

optical sensor, air release valve and liquid outlet valve being linked to a controller,

wherein, when the optical sensor senses air in front thereof, the sensor sends a signal to the controller to open the air release valve and close the liquid outlet valve, and when the optical sensor senses liquid in front thereof, the optical sensor sends a signal to the controller to close the air release valve and open the liquid outlet valve.

12. The system of claim 11 wherein the controller is a relay and when the optical sensor senses air in front thereof, the relay shuts the liquid outlet valve and opens the air release valve and when the optical sensor senses liquid in front thereof, the relay shuts the air release valve an opens the liquid outlet valve.

13. The system of claim 11 wherein the optical sensor comprises a 12 volt switch that is off when air is in front of the optical sensor and that is on when liquid is in front of the optical sensor,

the air release valve and outlet valves each being solenoid valves, the controller comprises two transistors in series with a first transistor linked to the air release valve and a second transistor linked to the liquid outlet valve,

wherein when the 12 volt switch of the optical sensor is off, the air release valve is open and the liquid outlet valve is closed and when the 12 volt switch of the optical sensor is on, the liquid outlet valve is open and the air release valve is closed.

14. The system of claim 13 wherein a low flow liquid outlet and low flow liquid outlet valve are connected in parallel to the liquid outlet and the liquid outlet valve, the low flow liquid outlet valve also being a solenoid valve,

the controller further comprises a third transistor in parallel with the second transistor, the third transistor linked to the low flow liquid outlet valve,

wherein either the low flow liquid outlet or the primary liquid flow output is closed when air is sensed.

15. The system of claim 11 wherein the optical sensor comprises a 12 volt switch that is on when air is in front of the optical sensor and that is off when liquid is in front of the optical sensor,

the air release valve and outlet valves each being solenoid valves, the controller comprises two transistors in series with a first transistor linked to the air release valve and a second transistor linked to the liquid outlet valve,

wherein when the 12 volt switch of the optical sensor is on, the air release valve is open and the liquid outlet valve is closed and when 12 volt switch of the optical sensor is off, the liquid outlet valve is open and the air release valve is closed.

16. The system of claim 15 wherein a low flow liquid outlet and low flow liquid outlet valve are connected in parallel to the liquid outlet and the liquid outlet valve, the low flow liquid outlet valve also being a solenoid valve,

the controller further comprises a third transistor in parallel with the second transistor, the third transistor linked to the low flow liquid outlet valve,

wherein either the low flow liquid outlet or the primary liquid flow output is closed when air is sensed.

17. The system of claim 11 wherein the reservoir accommodates a strainer disposed between the inlet and the liquid outlet.

18. The system of claim 11 wherein the optical sensor comprises an optical prism and solid state switch having an off position when air is in front of the optical prism and an on position when liquid is in front of the prism, the optical sensor being mounted through a sidewall of the air separation chamber.

19. The system of claim 11 wherein the optical sensor comprises an optical prism and solid state switch having an on position when air is in front of the optical prism and an off position when liquid is in front of the prism, the optical sensor being mounted through a sidewall of the air separation chamber.

20. The system of claim 11 wherein the air separation chamber is disposed directly on top of the reservoir.

21. A method for separating air from liquid that is being pumped through a reservoir, the method comprising:

providing an air/liquid separator comprising a pump connected to a reservoir, the reservoir comprising an inlet connected to the pump, an air/liquid outlet and a liquid outlet, the air/liquid outlet connected to an air separation chamber, the liquid outlet connected to a liquid outlet valve, the air separation chamber connected to an air outlet, the air outlet connected to an air release valve;

optically sensing the presence of air at a predetermined height in the air separation chamber;

when the optical sensor senses air in front thereof, opening the air release valve and closing the liquid outlet valve; and

when the optical sensor senses liquid in front thereof, closing the air release valve and opening the liquid outlet valve.

22. The method of claim 21 wherein the air liquid separator further comprises a low flow liquid outlet and low flow liquid outlet valve are connected in parallel to the liquid outlet and the liquid outlet valve.